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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Attorney Docket No.: JP919990215US1

In re Application of:

SHIGEFUMI ODAOHARA

Serial No.: 09/754,483

Filed: 4 JANUARY 2001

For: **POWER SUPPLY UNIT AND
COMPUTER**§
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§Examiner: **CHANG, E.**

Art Unit: 2116

APPEAL BRIEFMS Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The present Brief is submitted in support of the Appeal in the above-identified application.

Please charge Lenovo Corporation Deposit Account 50-3533 in the amount of \$500.00 for the submission of the present Brief. No additional fee or extension of time is believed to be required; however, in the event an additional fee or extension of time is required, please charge that fee to Lenovo Corporation Deposit Account 50-3533.

**CERTIFICATE OF FACSIMILE TRANSMISSION
37 CFR § 1.8(a)**

I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office via facsimile on the date below.

8/11/05
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REAL PARTY IN INTEREST

The present application is assigned to Lenovo Corporation, the real party of interest.

RELATED APPEALS AND INTERFERENCES

No related appeal is presently pending.

STATUS OF THE CLAIMS

Claims 6-10 and 12-13, which were finally rejected by the Examiner as noted in the Final Office Action dated June 30, 2005 and in the Advisory Action dated August 4, 2005, are being appealed.

STATUS OF AMENDMENTS

A Response was submitted on July 14, 2005 in reply to the Final Office Action dated June 30, 2005.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention provides a power supply unit that is capable of furnishing a high power conversion efficiency under a wide range of loads. The power supply unit of the present invention is intended for portable personal computers, such as notebook computers, sub-notebook computers, etc., which are required to alternate between an active mode and a suspend mode on a relatively frequent basis.

Claim 6 recites a voltage converter (page 28, lines 13-18; DC/DC converter 66' in Figure 5) includes a first power supply circuit (page 30, line 28; series power supply circuit 100 in Figure 5), a second power supply circuit (page 30, line 29; switching power supply circuit 102 in Figure 5), and a detecting circuit (page 28, lines 18-21; detecting circuit 140 in Figure 5). The first power supply circuit is connected in parallel with the second power supply circuit, and both the first and the second power supply circuits are capable of converting an input voltage to an output voltage. Based on the amount of current supplied to the first and second power supply circuits, the detecting circuit activates either the first power supply circuit or the second power

supply circuit to convert an input voltage to an output voltage (page 30, line 27 - page 31, line 1).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The Examiner's rejection of Claims 6-10 and 12-13 under 35 U.S.C. § 103(a) as being unpatentable over *Ferry et al.* (US 6,150,798) in view of *Schaffer* (US 5,498,984)

ARGUMENT

The Examiner's rejections of Claims 6-10 and 12-13 are not well-founded and should be reversed.

I. The claimed detecting circuit makes its selection based on the amount of current supplied to a first and second power supply circuits, while *Ferry* makes its selection based on signals at a load

Claim 6 recites "a detecting circuit for activating either said first power supply circuit or said second power supply circuit to convert said input voltage to said output voltage based on an amount of current supplied to said first and second power supply circuits."

On page 2 of the Final Office Action, the Examiner asserts that the claimed detecting circuit is disclosed by *Ferry* in col. 6, lines 44-51. In col. 6, lines 31-32 of *Ferry*, *Ferry* teaches that it is preferable to "use signals available within the load to control the regulator." In fact, on page 3 of the Advisory Action, the Examiner also states that *Ferry* "teaches using a signal indicative of the charge state of the battery with respect to a threshold value." Because *Ferry*'s battery is the load; thus, *Ferry* teaches the usage of signals at the load to control the regulator. In contrast, the claimed detecting circuit makes its selection based on the amount of current supplied to a first and second power supply circuits, and not based on signals at the load, as disclosed by *Ferry*.

II. The combination of *Ferry* and *Schaffer* does not teach or suggest the claimed detecting circuit

On page 5 of the Final Office Action, the Examiner asserts that the cited references teach the claimed detection based on current by way of *Ferry*'s TU signal indicative of the charges of a battery with respect to a threshold value (col. 6, lines 44-46) modified by the teachings of *Schaffer*. *Ferry*'s voltage regulator has three possible operating modes other than the switched-mode power supply operation (col. 6, lines 36-38), and the THRU mode as described in col. 6, lines 44-51 is one of the three possible operating modes. According to *Ferry*, the THRU mode can be used if an output terminal S is only connected to an input of a step-down post-regulator of voltage V_{out} or to inputs of post-regulators of such type (col. 6, lines 39-42). Since the output of the claimed voltage converter is not connected to "an input of a step-down post-regulator of voltage V_{out} or to inputs of post-regulators of such type," as stated by *Ferry*, it is clear that the TU signal is not applicable to the claimed detecting circuit.

Besides, the TU signal indicative of the charge state of the battery (*i.e.*, rechargeable battery 2 in Figure 3) is still not the same as "an amount of current supplied to said first and second power supply circuits," as claimed because signal TU is not quantified in the form of current. This can be shown by the example used by *Ferry*. In col. 6, lines 48-50, *Ferry* states that "for an output voltage V_{out} of 2.7 volts, signal TU is in the low state when the voltage across the battery is lower than 3 volts" (emphasis added). Thus, it is clear signal TU is not the same as "an amount of current supplied to said first and second power supply circuits," regardless of whether the output voltage can be converted to current in view of *Schaffer*, as suggested by the Examiner. Also, the TU signal is taken at the output (or battery) and not "supplied to said first and second power supply circuits," as claimed.

In addition, since TU signal is not quantified in the form of current, *Schaffer*'s current sense amplifier cannot render the same voltage-current relationship for the purpose of selecting one of the two power supply circuits, as contemplated by the Examiner. Because *Ferry* and *Schaffer*, whether considered separately or in combination, do not teach or suggest the claimed invention, the § 103 rejection is improper.

CONCLUSION

For the reasons stated above, Appellant believes that the claimed invention clearly is patentably distinct over the cited references and that the rejections under 35 U.S.C. § 103 are not well-founded. Hence, Appellant respectfully urges the Board to reverse the Examiner's rejection.

Respectfully submitted,



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CLAIMS APPENDIX

1-5. cancelled

6. A voltage converter comprising:

a first power supply circuit capable of converting an input voltage to an output voltage;

a second power supply circuit capable of converting said input voltage to said output voltage, wherein said second power supply circuit is connected in parallel with said first power supply circuit; and

a detecting circuit for activating either said first power supply circuit or said second power supply circuit to convert said input voltage to said output voltage based on an amount of current supplied to said first and second power supply circuits.

7. The voltage converter of Claim 6, wherein said first power supply circuit is a series power supply circuit, and said second power supply circuit is a switching power supply circuit.

8. The voltage converter of Claim 6, wherein said first power supply circuit has a relatively high conversion efficiency during a low load demand, and said second power supply circuit has a relatively high conversion efficiency during a high load demand.

9. The voltage converter of Claim 6, wherein said first power supply is activated by said detecting circuit when said current amount is below a predetermined value, wherein said second power supply is activated by said detecting circuit when said current amount exceeds said predetermined value.

10. The voltage converter of Claim 6, wherein said current amount is below a predetermined value when said voltage converter is in a suspended state, wherein said current amount exceeds said predetermined value when said voltage converter is in a non-suspended state.

11. cancelled

12. The voltage converter of Claim 6, wherein said first and second power supply circuits share a common voltage input and a common voltage output.

13. The voltage converter of Claim 6, wherein said detecting circuit includes a current sense amplifier coupled to a power input line for said first and second power supply circuits.

EVIDENCE APPENDIX

Not applicable.

RELATED PROCESSINGS APPENDIX

Not applicable.